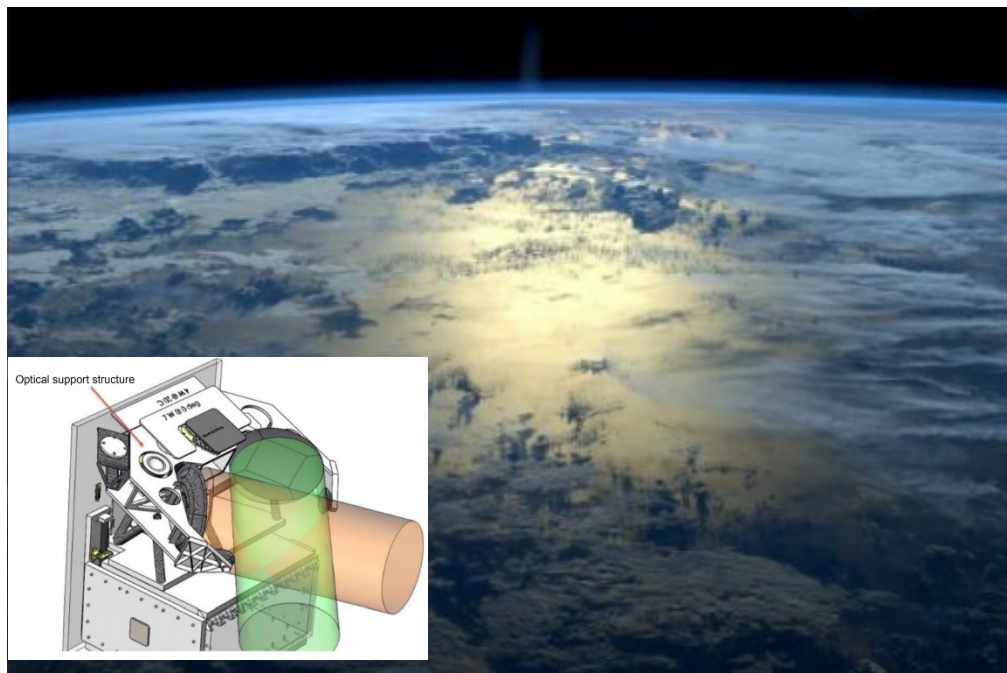


THz technology enabling the Stratospheric Inferred Winds experiment

Stratospheric Inferred Winds (SIW) sub-millimeter limb sounder is a scientific Swedish small-sat mission lead by Chalmers intended to fill the altitude gap between 30 and 70 km in atmospheric wind measurements as well as perform limb observations of temperature and key atmospheric constituents between 10 and 90 km. The SIW sub-millimeter limb sounder instrument has been selected for the 2nd InnoSat platform [1], with launch planned in 2022.

Omnisys Instruments AB is responsible for providing the scientific payload which will be based on a compact low weight high resolution spectrometer operating at 638 GHz. The proposed instrument high frequency design is based on THz receiver technology being developed in the GHZ Centre project Integrated Terahertz Systems (ITHZS) employing state-of-the-art GaAs Schottky Diode MMIC and InP HEMT LNA MMIC technology.

- [1] Press release Swedish national Space Agency:
<https://www.rymdstyrelsen.se/forskning/nyheter/ny-svensk-forskningsatellit-ska-studera-vindarna-i-atmosfaren/>
- [2] P. Baron, D. Murtagh, P. Eriksson et a., Simulation study for the Stratospheric Inferred Winds (SIW) sub-millimeter limb sounder, *Atmospheric Measurement Techniques*, 11(7): 4545-4566, 2018,): 4545-4566, <http://dx.doi.org/10.5194/amt-11-4545-2018>



The Stratospheric Inferred Winds experiment is a Swedish scientific small-sat mission designed for atmospheric observations of three-dimensional wind vectors, temperature, and key atmospheric constituents between 10-90 km. Image of the earth atmosphere, credit: ESA/NASA.